

**National Geospatial Advisory Committee Webinar Meeting
December 7-8, 2021
Minutes**

The National Geospatial Advisory Committee (NGAC) held a public meeting on December 7-8, 2021 from 1:00 p.m. to 5:00 p.m. both days. The meeting was held via webinar and teleconference. In accordance with the requirements of the Federal Advisory Committee Act, the meeting was open to the public.

NGAC members present:

Mark Reichardt, NGAC Chair
Sarah Battersby, NGAC Vice Chair
Frank Avila
Chad Baker
Byron Bluehorse
Gar Clarke
Garet Couch
Jack Dangermond
William Haneberg
Tony LaVoi
Roberta Lenczowski
Mark Meade
Siva Ravada
Felicia Retiz
Vasit Sagan
Amber Shultz
Cy Smith
Gary Thompson
Tim Trainor
May Yuan

Ivan DeLoatch, Executive Director of the Federal Geographic Data Committee and Designated Federal Officer (DFO) for the NGAC, and John Mahoney, Alternate DFO, were also in attendance.

NGAC Members not in attendance:

Sanjay Kumar

Other Attendees:

Dierdre Bevington Attardi (Census), Gryfen Brinson, John Byrd (NSPS), David Cackowski (Census), David Carter (DOI), Pat Cummins (Esri), Tod Dabolt (DOI), Elizabeth DuBan (FGDC), Nzinga Dyson (Lewis-Burke Associates), Julie Eckert (FGDC Support), Rich Frazier (FGDC), Gerald Guala (NASA), Tiffany Gibby (Tennessee Valley Authority), Travis Hardy (FGDC Support), David Herring (NOAA), Holli Howard (Google), Vincent Hurley (Planet), Steve Lewis (USDOT), Fred Lipschultz (US Global Change Research Program), Meredith Martin (Department of Commerce), Rebecca Adler Miserendino (Lewis-Burke Associates), Tim Newman (USGS), Edward O'Brien (Green International Affiliates, Inc.), Will Peebles (NASA), Griffin Reinecke (Lewis-Burke Associates), Nancy Ritchey (NOAA), Karen Rogers (State of Wyoming), Amy Rose (Oak Ridge National Lab), Jill Saligoe-Simmel (Esri), Joel Schlagel (USACE), Lorna

Schmid (FGDC), Ronald Sequiera (USDA), Ken Shaffer (FGDC), Vaishal Sheth (FGDC Support), Hayley Thompson (FGDC Support), Nicole Toigo (Ursa Space Systems Inc.), Tanya Trujillo (DOI), Kim Valentine (NOAA), Dominica Van Koten (BLM)

Tuesday, December 7, 2021 NGAC Public Meeting:

Welcome & Brief Introductions:

NGAC Chair Mark Reichardt called the meeting to order at 1:00 p.m. and welcomed members and public attendees. Member introductions were made. The Chair introduced Dr. Sarah Battersby, the NGAC Vice Chair. An overview of the agenda was provided.

Review and Adoption of Minutes from October NGAC meeting

The draft minutes of the October 2021 NGAC meeting were reviewed, and the Chair called for approval.

DECISION: The NGAC adopted the minutes of the October 12-13, 2021 NGAC meeting.

Leadership Dialogue:

Tanya Trujillo, Assistant Secretary of the Interior for Water and Science and FGDC Chair, discussed key Administration activities:

- The bipartisan infrastructure law was passed in November; the Department of the Interior is determining how it will use the funding and work with partner agencies to begin its infrastructure work.
- Years of effort have been put into the launch of Landsat 9; the Landsat earth observation images have been and will be continued to be used on a daily basis.

Ms. Trujillo expressed her anticipation of hearing the climate mapping discussion—as well as the discussion on the new Landsat papers. She thanked the committee for its input during 2021 on the FGDC climate mapping report. Ms. Trujillo thanked the NGAC members whose terms are ending for their service and expressed that she looks forward to working with the incoming NGAC members; she also thanked Mark Reichardt and Sarah Battersby for their outstanding leadership of the NGAC.

FGDC Update:

FGDC Executive Director Ivan DeLoatch provided a briefing on current and upcoming FGDC activities. Highlights included the following:

- Current priorities include the Climate Executive Order and the FGDC Climate Mapping Report; Geospatial Data Act implementation; revision to OMB Circular A-16; NSDI Strategic Plan implementation and Agency Geospatial Strategies; NGAC appointments; and the establishment of the NGAC 3DEP Subcommittee.
- GDA implementation activities include the refinement and updating of GDA reporting templates and processes for the 2021 reporting cycle; FGDC discussions on the standards process; coordination with agency Inspector General offices on upcoming 2022 GDA audits; continuing alignment with the CDO Council; Evidence Act implementation; and coordination with COGO on the next NSDI Report Card process.
- The 3DEP subcommittee charter has been approved.
 - 3DEP Subcommittee members are to be approved by the FGDC Chair and appointed by the NGAC Chair.

- The appointment of 3DEP Subcommittee members is in progress, with subcommittee kick-off activities planned to begin soon.
- NGAC appointments are in progress.
 - Final decisions on appointments are to be made by the Secretary of the Interior's office.
 - The schedule includes two rounds of appointments, with one planned for 2021 and another in 2022.
- International geospatial activities include collaboration with the Group on Earth Observations (GEO), the Open Geospatial Consortium, and the United Nations Committee of Experts on Global Geospatial Information Management (UNGIGIM).
- Upcoming activities include the quarterly FGDC steering Committee meeting on December 9 and an upcoming NGAC meeting in Spring 2022.
- GDA annual reports are due from agencies to the FGDC by December 31, 2021.
- The terms of the following NGAC members will expire on December 31, 2021: Mark Reichardt, Sarah Battersby, Frank Avila, Byron Bluehorse, Sanjay Kumar, Tony LaVoi, Amber Shultz, Gary Thompson, and May Yuan.
- On behalf of the FGDC, Mr. DeLoatch thanked these members for their service and contributions to the NGAC and wished them the best in their future endeavors.

ACTION: The next sets of appointments to the NGAC are under final review in the Department of the Interior. The schedule for announcement of the next two rounds of appointments is December 2021 and early 2022.

ACTION: FGDC staff is working with DOI offices to finalize the appointment of membership to the new NGAC 3DEP subcommittee. FGDC is also developing Operating Procedures that will describe the roles, responsibilities, and processes of the subcommittee.

FGDC Climate Mapping Report – Introduction:

Ivan DeLoatch and Tony LaVoi introduced the topic of the FGDC Climate Mapping Report. Highlights included the following:

- Session objectives include building on the previous climate report discussions with the NGAC, as well as gathering feedback from the NGAC on the Climate Resilience Information System (CRIS) and the FGDC evaluation called for under the FGDC climate mapping report, based on members' perspectives as representatives of the national geospatial community.
- The NGAC has discussed the Climate Mapping Report at its April 2021, June 2021, and October 2021 meetings.
 - At the conclusion of the October 2021 meeting, the NGAC passed a resolution supporting the findings and recommendations of the FGDC Report, "Advancing the Nation's Geospatial Capabilities to Promote Federal, State, Local, and Tribal Climate Planning and Resilience."
- Current activities include coordination on the CRIS approach; and development and refinement of the plan for the FGDC 120-day review.

FGDC Climate Mapping Report – Climate Resilience Information System (CRIS):

David Herring (NOAA) and Fred Lipschultz (US Global Change Research Program) provided an overview of the CRIS concept. Highlights included the following:

- Much of the information, tools, and methodologies needed to succeed in climate planning and resilience already exist.
 - Currently, what is needed is the right vision, leadership, expertise, funding, and a trained workforce working together in a concentrated effort to build a national climate resilience framework, supported by an integrated data & information system.
- Key concerns include growing communities that are unprepared for climate-driven disasters and increasing risk.
 - Key challenges include access to understandable and usable federal data, as well as integration of federal data with local data.
- The federal government is part of a larger “Resilience Ecosystem,” which includes federal science and data experts, cloud host services, adaptation practitioners, and decision makers.
- The US Climate Resilience Toolkit’s (USCRT) Five Steps to Resilience is a product of a knowledge process that synthesizes information from multiple sources to explore hazards; assess vulnerability and risk; brainstorm and list options for risk reduction; prioritize and plan; and take action.
 - Within this process, there is a need to integrate both federal data and information as well as data and information from local, regional, tribal, and state sources.
 - The goals and objectives of decisionmakers at all scales—from local to global—must become more aligned.
- There must be a focus on standards to ensure interoperability and accessibility of federal data and information by localities.
 - It is necessary to understand whether actions taken are actually increasing interoperability and access—and, if not, what corrective actions need to be taken.
 - Machine learning may help facilitate this process.
 - Each partner can use the toolkit to create their own storefront, to promote a “no-wrong-door” approach.
- CRIS is envisioned as a decision-relevant federal data lake, including metadata and data services; historical observations; downscaled projections; and CMIP6 outputs.
 - It will include open access/open-source tool developers’ workbenches as well as federal geospatial data and services.
 - Ideally, this will enable users to understand which models are the most useful for their location needs.
 - New capabilities could include knowledge hubs with information on drought and water; inland floods; coastal floods; wildfire weather; extreme heat.
 - It could also include a climate-smart communities initiative and platform, as well as an adaptation and resilience solutions database.
 - Ideally, these knowledge hubs would also be discoverable through other platforms, perhaps via inter-agency partnerships.
- The ability for non-science professionals to get data-driven answers that are in plain language and easily understandable is key.
 - Ensuring community involvement and equitability are crucial components.

Additional discussion points included the following:

- The cognitive and technological bridge could include a focus on what is relevant for a locality's objectives.
 - The building of cognitive bridges will help people to understand the importance of the data and models used.
 - This could be accomplished by having federal representatives who become immersed in local needs, risks, values, and culture—and who work backwards from there.
 - How can the NGAC best help people to understand the value of data and models, as well as to scale this approach down to the local level?
 - It is necessary to allow people to work in a cloud environment without having to do a lot of downloads, though still retaining the ability to download.
- There is no funding model yet for CRIS; the project scope, requirements, and plan have not yet been finalized.
 - The focus has been on trying to find and build upon existing components.
 - Capacity will be built to allow the effort to continue to improve in an agile manner.
 - States will have an important role to play on multiple fronts in this effort.
 - The goal is to make the approach as synergistic and co-invested as possible.
- The natural language query function will be incredibly important, as the language used by data scientists will not be useful to many of the data users and stakeholders.
- Having a single open data portal is incredibly helpful.
 - It is important to balance between a completely open-door policy with a stringent standards process—otherwise, it may be either difficult to trust data or hard to find data.
 - Usability of data and maintenance of data are also challenges; the large amount of data will amplify these.
 - Easy access and reliability of data are key concerns.
- The stakeholder and partner community will dictate the success of the effort and must be involved at all stages.
- Implementation will be challenging, but the iterative environment will allow for continued improvements.
- These goals will be achieved through using prototyping.
 - Using rapid prototyping to bring together the technology needed (distributed servers and cloud servers—which already exist).
 - Getting the information product right will be an experimental and evolutionary process.
 - The information products and services that support communities should be the focus of this effort; in the first year, the focus should be on the national resources and models that are relevant to state, local, and tribal interests.
 - All the lower-level infrastructure is already there—it just needs to be brought together with a cross-cutting, high-level architecture.
- The funding for this effort will come if the key information products are formalized.
 - The two primary operating agencies are NOAA and USGS.
- The GDA's requirement for the NGDA themes is to develop and implement plans for nationwide use of that data.
 - There is a focus on building partnerships and ensuring resource needs are met.
 - How can the agencies focus on successfully meeting the requirements of the GDA

- and the collaboration necessary to building the information services and products?
- If this problem can be solved for climate, it can also be solved for other problem sets.
- Relevant data should not be precluded from being included simply because it is not an NGDA.
- Limited resources should be put towards supporting CRIS and other climate efforts.
- Emerging technologies like blockchain could support this effort.

The Opportunity Project Update:

Tony LaVoi, Kim Valentine (NOAA), and David Herring (NOAA) provided a brief update on NOAA's The Opportunity Project (TOP) Climate/Smart Communities project. Highlights included the following:

- Ms. Valentine has been named the NOAA GIO and has served as a lead on NOAA's TOP project, along with Mr. Herring.
- The project is done in a 12-week sprint and focuses on climate resilience.
- The TOP Summit will take place December 13 through December 15, with over 1,000 participants already registered. The results of the Climate/Smart Communities project will be shared during the Summit meeting.

ACTION: NGAC members are welcome to attend the December 13-15 roll-out event on the results of the Census TOP (The Opportunity Project) Climate/Smart Communities project. FGDC staff will provide webinar information.

FGDC Climate Mapping Report – FGDC Evaluation of Climate Mapping Capabilities and FGDC Core Activities:

Ivan DeLoatch discussed the FGDC's evaluation of climate mapping capabilities and FGDC core activities. Highlights included the following:

- The evaluation goal is to assess climate-related NGDAs, the GeoPlatform, and the FGDC's core activities and explore potential enhancements that would improve current services and operations with a focus on climate data and services.
- The evaluation approach includes conducting the evaluation in parallel with climate-focused geospatial pilots and prototypes; conducting the evaluation in coordination with Executive Order 14008 211(d) Part 1 report.
- The evaluation is planned to be conducted by the interagency FGDC climate core team.
- The primary focus is on enabling climate related services delivery while also assessing related FGDC core activities.
- The evaluation will also focus is on current and proposed federal agency NGDAs and utilization of the GeoPlatform to support climate activities, including the proposed CRIS.

Additional discussion points included the following:

- This presentation is consistent with what has previously been discussed.
- Mark Reichardt indicated that a resolution will be drafted by the NGAC in support of this effort.
 - Support should be shown for the prioritization effort on themes to match the rollout of priorities being addressed by the CRIS team.
 - The integration of CRIS and federal mapping services should be rolled out as soon as

possible.

- A representative of the FGDC should be included in the CRIS core team.

ACTION: FGDC staff will summarize the feedback received from the NGAC on implementation of the FGDC climate mapping report, as well as key questions or topics that should be addressed in the 120-day review identified in FGDC report.

The Chair opened the floor for comments from meeting attendees. Tiffany Gibby (Tennessee Valley Authority) made following points:

- Tennessee has a significant amount of data that could be valuable to the CRIS effort; leveraging that data and providing it to different use cases will be of great benefit.
- As a federal agencies, it is important to work with local and tribal partners to allow them to develop their own perspectives and viewpoints of climate in their domains using federally-collected data.

Adjourn

Mr. Reichardt made closing remarks and provided an overview of the Day 2 agenda.

Wednesday, December 8, 2021

NGAC Vice-Chair Sarah Battersby called the meeting to order at 1:00 p.m. and welcomed members and public attendees and provided the day's agenda.

Review and Adoption of CRIS Resolution:

Mark Reichardt provided an overview of the draft resolution supporting the vision and roadmap for CRIS. Following discussion of the proposed resolution, the Chair called for approval.

DECISION: The NGAC adopted the following resolution:

"The NGAC supports the vision and framework for the Climate Resilience Information System (CRIS) as presented to the Committee at its December 2021 meeting, and encourages the FGDC member agencies to commit to the following recommendations in support of resilient, climate smart communities:

- Focus on end user needs and common local / regional climate priorities.
- Consistent with Administration priorities on climate, prioritize development of critically needed National Geospatial Data Assets (NGDAs) and other geodata assets, including State, Tribal, academic, private sector, Federal, and local government data sources, needed to address climate community needs.
- Ensure FGDC participation in the CRIS core team to assure full integration of mapping capabilities and resources.
- Continue coordination with the organizations represented by members of the NGAC to ensure ongoing geospatial community input and support.
- Encourage the involvement of all sectors, as listed above, and the development of partnership arrangements to assist in advancing CRIS and enhancing climate resilience.

The NGAC emphasizes the need for immediate and bold action toward implementation of community climate resilience capability, and we stand ready to offer our expertise and assistance."

Landsat Advisory Group Subcommittee:

Bobbi Lenczowski provided an update on Landsat Advisory Group (LAG) activities.

- 2021 LAG Task 1 (Landsat in the Cloud) paper:
 - The team restructured the original draft paper to incorporate case studies more effectively; the revised draft is in review by the team.
 - The LAG will seek NGAC approval for this paper during the Spring 2022 NGAC meeting.
- 2021 LAG Task 2 (Where is the "Water's Edge" of NLI Scope?) paper:
 - The initial draft is completed and is in revision by the team to synthesize findings and recommendations.
 - The LAG will seek NGAC approval for this paper during the Spring 2022 NGAC meeting.

Tim Newman (USGS) provided an update on the USGS National Land Imaging Program. Highlights included the following:

- The National Space Council met last week.
- Landsat 9 was launched on September 27, 2021 and was deployed successfully.
 - The on-orbit checkout is underway.
 - The mission will be handed over to USGS early in 2022.
- Landsat Collection 2 was released to the public in 2021.
 - It included improved radiometry, geometry, metadata, and access for Level 1 and Level 2 products.
- The Pecora-22 conference will occur October 23 through October 28.
 - This conference is USGS's flagship land-imaging satellite applications conference, as well as the product of a longstanding USGS-NASA partnership.
 - The conference will highlight Landsat's 50th anniversary.
 - The conference will feature Landsat 9, Landsat Next, and the many innovative developments in government geospatial data.

Additional discussion points included:

- What is the USGS strategy for handling data egress costs?
 - Working in the cloud to access Landsat data does not incur egress costs for viewing data.
 - USGS is still trying to learn about the use of USGS data and the cloud by end users.
 - This is one of the topics being covered by LAG Task 1 paper.
 - NOAA's Big Data Program may be of interest to USGS regarding this topic.
 - Collection 2 would not have happened without the cloud.
- What are the kinds of products that users most commonly request?
 - The total volume of data is much less than if it were simply scenes.
 - Many users are likely picking out scenes of interest and choosing only a few bands—perhaps only going back a few years.
 - Perhaps a change algorithm could be built into a services environment.
- The two 2021 LAG Topics are mutually supportive, promoting sharing and co-production; these have the potential to revolutionize the geospatial community.

ACTION: The LAG Subcommittee is planning to complete two papers by December 2021:

- **Task 1: Landsat in the Cloud Era**
What innovations should NLI consider a priority in providing data and information products in the cloud? Recommending innovations requires an understanding of the current status, policies that may restrict or facilitate innovation, and how these innovations might be accomplished.

- **Task 2: Where is the “Water’s Edge” of NLI Scope?**

Since Federal resources are limited, and we are in a “phase shift” in the Earth Observation community, what earth observation products should the Federal government provide to optimize benefit to the public?

Public-Private Partnerships / Stakeholder Engagement Subcommittee Update:

Mark Reichardt and Cy Smith provided a report on the activities of the Public-Private Partnerships (P3) Subcommittee and Stakeholder Engagement Subcommittee, including the following highlights:

- There is interest in moving toward the definition of a national governance model.
- It is also crucial to have an enhanced communication pathway to promote the engagement of stakeholders in this process.
- The subcommittee is developing recommendations to test / pilot collaborative governance approaches.
- There must be a focus on aligning and coordinating factors such as requirements, resources, funding, and partnerships.
- What might be a roadmap towards strategic planning and implementation of P3s and Stakeholder Engagement?
- The notional concept of evolving a national governance model is encapsulated in the concept of an Alliance for Location Leadership (ALL).
 - The rationale for the ALL builds on the concept that the NSDI must be built and supported by authoritative data providers from local, state, and tribal governments, institutions of higher education, and open data.
 - Key functions of ALL might include supporting collaboration and partnerships to advance NGDAs and other geospatial data themes/assets, as well as addressing and recommending solutions for key geospatial challenge areas.
 - ALL programmatic processes may be best supported by a non-profit organization, or a Special Purpose Vehicle, which underpin many successful P3s.
 - An existing non-profit organization could serve this purpose for piloting.
 - The pilot process would be iterative, culminating at a national level.
- Potential next steps include:
 - Holding sessions with the community to:
 - Share and further shape a piloting governance model
 - Identify potential candidate NSDI topics and geographic locations; and
 - Develop a National Communications Recommendation
 - Develop a Governance Piloting Roadmap Recommendation to the NGAC
 - Develop a Communications Recommendation to the NGAC.

Additional discussion points included:

- Could academic institutions participate?
 - Yes, the research and academic community is indispensable.
- Would this involve the creation of a new institution?
 - There is significant opportunity to nest this effort within an existing nonprofit organization, depending on the organization’s charter.
 - This could also involve a collaborate effort between multiple organizations.
 - Creating a new organization would have the advantage of not having to be nested within an existing organization’s own unique mission and special interests.
 - It will be vital to bring together representatives from different interested nonprofits

to build out activation activities.

- Involving all stakeholders in this process is crucial.
- From a federal perspective, where is the authority? Unclear how federal agencies would participate.
- Doing a pilot will be a good first step and will allow the building of crucial support.
- The FGDC currently has a strong stakeholder program. However, the non-federal groups, who are creating most of the data—only have an advisory role.
- How do Administration priorities fit into this process?
- The NSDI does not provide consistent national data at a sufficient granularity to be useful to local governments.
- It is important to keep in mind the advisory role of the NGAC; the NGAC is not an operational body.
- FACA rules will need to be considered at each step of the process.
- Pilots should be aligned with national priorities.
- Involving a non-federal organization in the pilot could add some level of flexibility to the process.

ACTION: NGAC members should provide comments on the draft Alliance for Location Leadership national geospatial collaborative governance conceptual framework model to Mark Reichardt and Cy Smith by December 17.

GDA Reporting Subcommittee:

John Mahoney provided an update on GDA Reporting activities. Highlights included the following:

- The 2020 GDA summary reports were made available in a variety of user-friendly and accessible formats, such as dashboards.
- The focus areas of the NGAC comments on the 2020 GDA Report Summary included:
 - Positive elements—namely, what was successful in the initial GDA report summary;
 - Areas needing improvements; and
 - Recommendations for future reports—namely, what can FGDC do to improve future versions of the GDA annual report summaries?
- The 2021 GDA reporting process will build upon the 2020 reporting approach.
 - It will continue to utilize common reporting templates and will include submission of reports through survey tools via GeoPlatform.
 - Reporting information will be made available through multiple formats, such as individual reports, summary tables, and dashboards.
 - There will be coordination with Inspector General offices on 2022 audits of agency GDA reports.
 - Covered Agency Reports will include minor changes to the questionnaire.
 - Agencies will be able to provide additional detail in narrative sections.
 - NGDA Theme (Lead Covered Agency) Reports will include a migration to a survey approach to gather information on ongoing activities that support NGDA datasets.
 - FGDC efforts will be highlighted—particularly those to analyze requirements and develop common approaches and strategies for standards management and the nationwide population of data.

- New members may be added to the GDA Reporting Subcommittee following 2021 / 2022 NGAC appointments.
- Next steps include:
 - FGDC briefings will be held for the GDA Reporting Subcommittee (December 2021 / January 2022).
 - Subcommittee membership will be updated (January 2022).
 - The Subcommittee proposed review timeline is tentatively scheduled as follows:
 - By February 28, the 2021 GDA report summary will be provided to subcommittee for review during a 4-week review period.
 - By March 25, GDA subcommittee will complete draft comments and provide these to the NGAC and FGDC.

ACTION: FGDC staff will schedule meetings with the GDA subcommittee in December/January to brief the members on the timing and approach for the 2021 cycle for GDA reporting and discuss how NGAC comments on the reporting process are being addressed. The NGAC review of the draft 2021 GDA reports is scheduled to begin in February 2022 per the FGDC timeline.

Public Comment Period:

Opportunity was provided for public comments. No comments were provided.

Look Ahead to NGAC 2022

Sarah Battersby and John Mahoney provided a briefing on the NGAC's 2021 accomplishments, as well as efforts toward organizing the NGAC for the year ahead, including a discussion of potential 2022 study topics. Highlights included the following:

- The standing subcommittees include the LAG, GDA Reporting, and 3DEP Subcommittees.
- The current subcommittees include the P3 / Stakeholder Engagement and NSDI Subcommittees.
 - The P3 and Stakeholder Engagement Subcommittees have been working together as a joint subcommittee.
- Potential 2022 study topics identified by NGAC members include the following:
 - Newly proposed topics:
 - Resurrect the NAD and NPD. Why have these not been successful as realized recommendations?
 - Climate change and geospatial information. Are we prepared at a national level through to the local level to address the many changes that the world will be experiencing in its attempt to deal with climate change?
 - Privacy, protection of PII, and geospatial data. All areas are affected by privacy concerns, including addresses.
 - Cross-agency collaboration on national geospatial activities. It is hard for an agency to take on a task or role that is not part of its mission, even if it may be the best organization to do that work.
 - Education and workforce.
 - Carryover topics from 2020:
 - Leveraging AI/ML to advance the NSDI;
 - 2022 National Spatial Reference System Modernization;
 - The power of geospatial in context; and

- US geospatial strategy on the global front.
- FGDC staff will seek suggestions from FGDC agencies for potential 2022 NGA study topics.
- NGAC and FGDC leadership will review and integrate the inputs and develop a proposed set of study topics for 2022. In addition to current activities, there may be an additional one or two new subcommittees started.
- Next steps in 2022 include:
 - Appointment and orientation for new NGAC members (early 2022).
 - At the Spring 2022 NGAC meeting, NGAC members will be asked to provide their first and second choices for subcommittee assignments.
 - Subcommittee assignments and leadership will be finalized to ensure appropriate balance and representation in all subcommittees.

Additional discussion points included:

- Data modernization could be a potential meeting topic, particularly in the context of smaller, less well-staffed localities.
- AI/ML and climate topics are inherently related; other topics could also be combined.
- The US geospatial strategy on the global front should be a top priority, as it will determine what the US pursues in the next decades.
- Having climate data is still a few steps away from having useful tools to make and implement decisions using this data.
- There is a great need for carbon modeling. Carbon sequestration models and geographic distribution of carbon need additional support and development.
- The topic of health and pandemics should also be considered.
 - How is geospatial data helping with the tracking and forecasting of health issues and pandemics?
- Infrastructure and climate are both Administration priorities that should also continue to be explored by the NGAC.

ACTION: The FGDC staff will coordinate with FGDC and NGAC leadership to refine and finalize NGAC study topics in early 2022.

Next Meeting

The next NGAC meeting will be held in Spring 2022. Additional information about the 2022 meeting schedule will be provided soon.

Adjourn

Dr. Battersby made closing remarks and adjourned the meeting.

Certification

I hereby certify that, to the best of my knowledge, the foregoing minutes are accurate and complete.

Mr. Gary Thompson, Chair, National Geospatial Advisory Committee

Mr. Josh Delmonico, Acting Designated Federal Officer, National Geospatial Advisory Committee

Mr. John Mahoney, Alt. Designated Federal Officer, National Geospatial Advisory Committee

These minutes will be formally considered by the Committee at its next meeting, and any corrections or notations will be incorporated in the minutes of that meeting.

Note – these minutes were approved by the NGAC on May 18, 2022

Summary of Presentations and Handouts

The following is a list of the presentations and handouts from the meeting. These meeting materials are posted along with the minutes at: <https://www.fgdc.gov/ngac/meetings/december-2021/index.html>

FGDC Update

- FGDC Update

Climate Mapping Report – Introduction

- Climate Mapping Report Presentation – Climate Overview

Climate Mapping Report – Climate Resilience Information System (CRIS)

- Climate Mapping Report Presentation – CRIS

Climate Mapping Report – FGDC Evaluation of Climate Mapping Capabilities and FGDC Core Activities

- Climate Mapping Report Presentation – FGDC Evaluation

CRIS Resolution

- CRIS Resolution

Landsat Advisory Group

- Landsat Advisory Group Update

Public-Private Partnerships / Stakeholder Engagement Subcommittees Joint Update

- Public-Private Partnerships / Stakeholder Engagement Subcommittees Joint Update

GDA Reporting

- GDA Reporting Update

Look Ahead to NGAC 2022

- 2022 Study Topics